ABSTRACT

The present invention provides an improved HRTF modeling technique for synthesizing HRTFs with varying degrees of smoothness and generalization. A plurality N of spatial characteristic function sets are regularized or smoothed before combination with corresponding Eigen filter functions, and summed to provide an HRTF (or HRIR) filter having improved smoothness in a continuous auditory space. A trade-off is allowed between accuracy in localization and smoothness by controlling the smoothness level of the regularizing models with a lambda factor. Improved smoothness in the HRTF filter allows the perception by the listener of a smoothly moving sound rendering free of annoying discontinuities creating clicks in the 3D sound.

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